NOTE XXIV.

NEW GENERA AND SPECIES OF MEGALOPTERA LATR.

BY

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About 8 months ago I finished my monograph of the Megaloptera (Sialidae) for the „Catalogue des Collections Zoologiques du baron E. de Selys Longchamps." Though the work is since ready for the press, it cannot yet be printed. As there are many new genera and species described in it and because other workers in this interesting family might describe them before my monograph has been published, I give here short descriptions of them in order to secure their priority.

This order of insects, separated from the other Neuroptera and especially from the Planipennia under the name of Megaloptera, contains two families: the primitive Sialidae and the much higher specialised Raphidiidae.

The first quoted family only contains more genera and tribes and is divided in the following way:

Three ocelli, fourth tarsal joint simple, not bilobed. Large and mediocre forms. subfamily CORYDALINAE Davis.

Ocelli wanting, fourth tarsal joint bilobed prominently. Rather small forms. subfamily SIALIDINAE Davis.

Subfam. CORYDALINAE.

Male with a pair of app. sup. and infer. Antennae mo-

niliform in both sexes, never pectinate. Head quadrangular, with more or less developed dent at the sides and dendriform pattern on the occiput.

Wings with more than 3 crossveins between the radius and radialsector. Large forms.

tribus NEUROMINI, nov. trib.

Male with only a pair of app. sup. The app. inf. are absent. Antennae mostly pectinate in the male, moniliform to pectinate in the female. Head triangular, no dent at the sides. Occiput with linguiform pattern.

Wings with only 3 crossveins between radius and radialsector. Mediocre to large forms.

tribus CHAULIODINI, nov. trib.

Tribus NEUROMINI.

Key to the genera.

1. Sides of the head very enlarged, with two dents.
Platyneuromus, n. g. (America).

Sides of the head with one, more or less distinct dent. . 2.

2. Head moreover with a tooth on the occiput, mandibles in the male much larger than in the female, body black or darkbrown. Very large forms.
Acanthacorydalis Weele (Asia).

No tooth on the occiput . . . . . 3.

3. Dent distinctly developed . . . . . 4.

Dent only slightly indicated by an elevated line near the posterior edges of the quadrangular head . . 5.

4. Male mostly with elongate mandibles and larger antennae than in the female. App. inf. clubbed, not clawlike. Large forms with brownish grey wings, punctated with many white dots. Body pale brown.
Corydalus Latr. (America).

Mandibles and antennae equal in both sexes. App. inf. of male clawlike. No pale dots in the wings . . 6.

6. App. sup. of the male clubbed at the apex. Genitalvalve absent, penis very long. Large forms with dark coloured body and wings. *Neoneuromus*, n. g. (Asia).

App. sup. of the male not clubbed at the apex. Genitalvalve well developed, penis short. Mediocre forms with pale yellow body and wings. Between radius and radialsector four crossveins. *Neuromus* Ramb. (Asia).

5. App. inf. clubbed, with a very minute claw at the tip. App. sup. acute, not clubbed at the apex. Body and wings as in *Neuromus*. Between radius and radialsector three crossveins. *Chloronia* Banks (America).

App. inf. clawlike, app. sup. acute or bifurcate, short. Wings elongate, with darker groundcolour and pale spots. Body pale. *Protohermes* Weele (Asia).

App. inf. as in *Protohermes* but app. sup. always bifurcate. Wings broad at the base, narrowed at the tip, very darkbrown with creamwhite spots. Body black. *Hermes* Gray (Asia).

Gen. *Corydalus* Latreille (1802).

This name has the priority for *Corydalis* of the same author, the latter being two years younger.

The following species are new:

Corydalus primitivus, nov. spec.

This new species remembers in form, size, colour and pattern of the wings *C. affinis* Burm. and *cornutus* L. The nervature is not so dense as in the former and not so open as in the latter species. Mandibles of the ♂ mostly short, but when elongated they are nearly straight. The genitalia are rather primitive as the app. sup. are straight,

nearly parallel, not forming a forceps. The tips are straight and there is a dilatation at the base about as in *C. armatus* Hag. The app. inf. are long and clubbed. The genital-valve is quadrangular with prominent posterior edges. The penis is about as in *C. nubilus* Er.

Habitat: Argentine Republic.

A series of 5 specimens in the Leyden Museum and one female in the collection de Selys.

Platyneuromus, nov. gen.

Characterised by the two broad dents of the very flat head and by the genitalia of the ♂.

The type is *Corydalis soror* Hagen from Mexico.

Neoneuromus, nov. gen.

This genus is created for *N. sikkimmensis* Weele, *fenestralis* Mc. Lachl. and *latratus* Mc. Lachl. with their subspecies.

Gen. *Chloronia* Banks (1908).

Banks only indicates it as a name, giving no description. He enumerates *corripiens* Wlk. in it, which species I accept now as the type. *N. hieroglyphicus* Ramb. is a second species. I give here the short description of two new species.

Chloronia meridionalis, nov. spec.

Nearest related to *corripiens* Wlk.

Antennae black, the basal fourth yellow. Body yellow, tips of mandibles and spot between the ocelli black. Pronotum with two short, black, longitudinal lines in the anterior half and two ditto in the posterior one, which latter are more removed from one another than those in the anterior half. Legs yellow, knees darkbrown. Abdomen yellow.

Wings pale yellowish grey. Nervature brown, the cross-

veins black. In the forewings there are fuscous streaks or points along the hindborder to the tip as in *corripiens*, and also similar points in the cells between the branches of the radialsector. In the hindwing are only three small fuscous points between media and radialsector visible in the first cell.

The genitalia of the ♂ are similar to those of *corripiens*, the app. inf. are very different and the genitalvalve is more like that of *hieroglyphica*. The penis much remembers that of *corripiens*, but it has two small tubercles as in *bogotana*, but much smaller.

Body ♂ 25 mm., forewing 33 mm., hindw. 30 mm., ant. 11 mm.
Abd. ♂ 10 mm., gr. br. 12 mm., gr. br. 11 ⅓ mm.

Habitat: Minas Geraës, South Brazil.

One male from Minas Geraës, 14 November 1900, Kennedy coll., is in my collection in the Leyden Museum.

Chloronia bogotana, nov. spec.

Nearest related to *corripiens* Wlk., but much resembling *hieroglyphica* Ramb. in the form of the penis and in the coloration of the wings.

Antennae yellow. Head reddish yellow, tips of mandibles and two longitudinal lines on the occiput, black. Prothorax with traces of dark spots in the anterior and posterior angles. Meso- and metathorax and abdomen of the same colour. Legs luteous brown, the last tarsal joint shining black above, the knees of the anterior legs dark-brown, those of the other legs paler.

Wings with yellow membrane and nervature, the crossveins nearly all black, only paler in the posterior wings. The discal crossveins of the forewing are broadly margined with a pale bluish grey colour, that also is to be seen as spots in the cells. Costalveins, the crossveins at the origin of the media and those distalwards from the cubiti are deep black. The hindwings have paler crossveins and the dark spots are absent.

The genitalia of the male remember by their elongate clubbed app. inf. and by the curved app. sup. those of *corripiens*. The genitalvalve also is similar, but the penis is more like that of *hieroglyphica*, as it consists of two digitiform hairy prominences.

Body ♂ 30 mm., forew. 36 mm., hindw. 32 mm., ant. 11 mm.
Abd. ♂ 15 mm., gr. br. 13 mm., gr. br. 11 mm.
App. sup. ♂ 3 mm.

Habitat: Columbia.

One male from Bogota, Columbia, purchased from Doncaster, is in my collection in the Leyden Museum.

Protohermes davidi, nov. spec.

Much resembling *P. albipennis* (Wlk.) from India, but larger, with much denser wingnervature and also very different in the genitalia of the male.

Body luteous. Tips of mandibles and the spot between the ocelli, black. Antennae black, the two basal joints luteous, with a brown annulus in the middle. Prothorax with a broad, black streak at each side. Mesothorax with two black spots. Legs luteous to fuscous.

Wings large and very broad, with yellow nervature, which becomes brown towards the apex and borders; there are no well-defined pale spots. In the hindwings the yellow nervature occupies only about the half, in the forewings nearly two thirds of the wing. In the latter the postcosta and cubitus inferior with adjoining nervature are fuscous. The crossveins are very numerous and the number of costalveins in the forewing can increase to 46, in the hindwing to 39.

The gonopoda of the male are yellow. The app. sup. are broadly triangular with rounded tip. The genitalvalve consists of two divergent acute triangular prominences, which are as long as the app. sup. The app. inf. are short, clawlike, with black tips.

Body ♂ 30 mm., forew. 48—52 mm., hindw. 42—46 mm., ant. 14 mm.
Abd. ♂ 15 mm., gr. br. 16—18 mm., gr. br. 16—18 mm.
App. sup. ♂ 3 mm.

Habitat: China.

Two males, collected in Mou-Pin by A. David in 1870, are the only specimens known as yet. The types are in the Paris- and in the Leyden Museum.

Hermes sumatrensis, nov. spec.

Nearly related to *maculipennis* Gray and probably a subspecies of it, but differing by the apical spots of the wings, which are about twice larger than in that species and about one half of those of *maculifera* Wlk. The creamwhite spots of the forewings are all isolated, more numerous and somewhat larger than in *maculipennis*. There is no basal cream-coloured spot at the hindborder of the forewings, only two isolated round spots represent the reminiscences of it. In the hindwings this spot is much larger, about as large as in *maculifera*, and it reaches the anal angle, so that it is about one and a half larger than in *maculipennis*. In the middle it has a long apical prominence and it occupies about the basal half of the wing.

As the ♂ is still unknown, it may be that there are no differences in the gonopoda with *maculipennis* or *maculifera*, which both species it seems to connect.

Body ♀ 25 mm., forewing 34 mm., hindw. 30 mm.
Abd. ♀ 12 mm., gr. br. 12 mm., gr. br. 12 mm.

Habitat: Sumatra.

I examined a female from Pajakombo, East Sumatra, collected by the late french naturalist H. Rouyer. The type is in the Leyden Museum.

Hermes maculifera tonkinensis, nov. subsp.

Very similar to *maculifera*, but the wings are relatively broader, the white spots less numerous, but larger.

The basal white spot of the hindwings also occupies nearly half the wing, but in the anterior part there is an isolated large white spot, which is always connected with the basal patch in *maculifera*. On the hindborder the white colour surpasses the anal angle much farther, but the dark colour is not gradually increasing in breadth, but ends with an acute prominence in the basal patch.

Body ♀ 27—33 mm., forew. 38—41 mm., hindw. 34—37 mm.
Abd. ♀ 9—20 mm., gr. br. 13—14 mm., gr. br. 14—15 mm.

Habitat: Tonkin.

Two specimens, both females, from Tonkin. The types are in the Paris- and in the Leyden Museum.

Hermes selysi, nov. spec.

Probably only a local form or subspecies of *maculifera* from which it differs in the following points:

About one third smaller in size. Spots in the forewings very small, pointlike, the apical spots relatively half so small, only somewhat larger than in *sumatrensis*. In the hindwings the basal spot is very small and irregularly trapeziform; it reaches about to the middle of the anal-border and is not connected with the other spot.

The female has the pronotum black, but in a specimen that may be a damaged male it is of a light orange colour without indications of black spots.

Body ♀ 25 mm., forew. 25—32 mm., hindw. 23—29 mm.
Abd. ♀ 10 mm., gr. br. 9—11 mm., gr. br. 8½—11 mm.

Habitat: Sylhet and Assam.

I examined four specimens. The damaged one, that seems to be a male, is from Sylhet and in the Collection de Selys. The others are from Khasia Hills, Assam, and are all females. Two of them are in my collection in the Leyden Museum, the third is in the British Museum.

Tribus CHAULIODINI.

Key to the genera.

Antennae moniliform or subserrate in both sexes . 1.
Antennae pectinate in the male, moniliform or subserrate in the female . . . . . 2.
Antennae pectinate in both sexes.
Ctenochauliodes, n. g. (Asia).

Antennae very long in both sexes, reaching about at two thirds of the forewing; in the male with long hairs at the joints and the app. sup. bifurcated.
Neohermes Banks (N. America).

1. Antennae reaching about to or beyond the middle of the forewings. Wings spotted all over with small pale fuscous dots, forming in some species confluent crossbands in the forewings and in some other species larger spots between media and radialsector in the hindwings. App. sup. of the male long, straight or curved and forming a forceps, always longer than the last segment and not truncated or bifurcated at the apex.
Archichauliodes, n. g. (New Zealand, Australia, S. Africa).

As in *Archichauliodes* but the app. sup. of the male truncated or bifurcated. *Protochauliodes*, n. g. (Chile).

Antennae subserrate in the male, moniliform in the female. App. sup. of the male very short and truncated.
Parachauliodes, n. g. (Japan, China).

2. Forewing spotted with many small dark points, which seldom form dark crossbands. App. sup. of the male moderately long, acute and straight.
Chauliodes Latr. (N. America).

Forewings as in *Chauliodes* and *Parachauliodes* or with larger spots, which form crossbands, that can enlarge

so much, that the wings are nearly wholly suffused with a dark colour. App. sup. of the male stout, not exserted, truncated. *Neochauliodes*, n. g. (Asia, Mal. Arch.).

Forewings nearly black, with some pale creamwhite spots in the middle. App. sup. of the male very short and inconspicuous. Penis very long, deposed in a long oval cavity of the last segment. Genitalvalve very small. Antennae serrate to pectinate in the male, subserrate in the female. . . . . *Nigronia* Banks (N. America).

Archichauliodes, nov. gen.

For the characters of the genus compare the key. The type is *Ch. dubitatus* Wlk. from New Zealand, which is the most primitive species. Moreover belong to this genus *Ch. guttiferus* Wlk. from Australia, and *Ch. pusillus* Mc. Lachl. from South Africa.

Protochauliodes, nov. gen.

The type of this primitive genus is *Ch. cinerascens* Blanch., from Chile. Another chilean species is *Neohermes humeralis* Banks. The genus is the precursor of *Neohermes* Banks.

Neohermes Banks (1908).

Banks, Proc. Ent. Soc. Wash. X, p. 29 (1908).

Banks gives in the description of his *N. humeralis* p. 27, no description of the genus. Further, on pp. 28 and 29, he gives its characters and mentions as the type *Ch. filicornis* Banks, which is a synonym of *Ch. californicus* Wlk. I accept the genus for this type, mentioned on p. 29, where the full description of the genus is given. As other species belonging to it he mentions: *californicus* Wlk., *angusticollis* Hagen (also a synonym of *californicus* Wlk.), *cinerascens* Blanchard and *N. humeralis* Banks. Though the characters given are only concerning the nervature and are to

be applied both to *Protochauliodes* and *Neohermes* together, I redescribed the latter in my Monograph for the species *californicus* Wlk. and *disjunctus* Wlk. These species occur in N. America and on Vancouver Island.

Parachauliodes, nov. gen.

More or less between *Chauliodes* and *Neochauliodes* and well enough distinct. The type is *Ch. japonicus* Mc. Lachl. from Japan. Moreover the following new species from Korea belongs to this genus.

Parachauliodes continentalis, nov. spec.

Nearly related to *japonicus* and very similar to it, but distinct by the more robust body, broader and shorter wings which are darker coloured, and by the gonopoda of the male.

The app. sup. are broader than long, trapeziform, without an excision of the hindborder, which is straight and oblique. Tubercle oval, larger, situated at the lower angle of the hindborder and being parallel with it. Penis and genitalvalve invisible in the single dried specimen.

Body ♂ 33, ♀ 32 mm., forew. ♂ 47, ♀ 46 mm., hindw. ♂ 42, ♀ 41 mm.
Abd. ♂ 20, ♀ 16 mm., gr. br. ♂ 15, ♀ 14½ mm., gr. br. ♂ 15, ♀ 14½ mm.
App. ♂ 1½ mm.
Cost. forew. 29—30.
" hindw. 28—29.

Habitat: Korea.

One couple from Korea in the British Museum.

Neochauliodes, nov. gen.

This is the asiatic genus which is nearly the highest specialised of the tribe and contains the following new species.

Neochauliodes khasianus, nov. spec.

Chauliodes pusillus Weele nec Mc-Lachl., Notes Leyden Mus. XXVIII, p. 256, pl. 4, fig. 4, ♂ (1907).

Nearly allied to *simplex* but considerably smaller, with

relatively much narrower and more spotted wings. The pterostigmatical markings are very indistinct in the forewing, absent in the hindwing. The forewing is spotted with numerous very indistinct greyish brown dots, which give the membrane a nearly homogeneous, grey-brown tinge. Hindwing much paler and without distinct markings.

In both wings are three brown points between radial-sector and media. Nervature brown, the crossveins yellowish white. Costalfield of the forewing dark coloured.

Body grey-brown. Antennae very long, reaching beyond the middle of the forewing, black, long-pectinate. Legs long, femora red, tibiae brown, tarsi nearly black.

Body ♂ 10 mm., forew. 22 mm., hindw. 20 mm., ant. 13 mm.
Abd. ♂ 4 mm., gr. br. 7 mm., gr. br. 7 mm.

Habitat: Assam.

One male from Assam, Khasia Hills, in my collection in the Leyden Museum.

Neochauliodes sinensis occidentalis, nov. subsp.

Chauliodes sinensis Weele, Notes Leyden Mus. XXVIII, p. 262, partim (1907). Omei Shan.

Somewhat larger than typical *sinensis*-specimens and characterised by the milky hyaline membrane on which the dark pattern is very distinct. The oblique band of the forewing is larger and mostly connected with the dark ante-pterostigmatical spot. In the hindwing it is narrower, nearly equal in breadth or gradually pointed towards the hindborder.

The male is distinguished from the female by its less distinct pattern and narrower oblique bands.

Habitat: Western China, Omei Shan.

The types are in the British- and in the Berlin Museum.

Neochauliodes sinensis meridionalis, nov. subsp.

Nearest related to the foregoing subspecies and of the same size, but distinct by the darker coloured wings. The

posterior- and abdominal border of the hindwing is suffused with fuscous and connected with the oblique band, which also is broader at the posterior end. The marginal and submarginal spots of the forewing are very distinct and clear. The marginal ones are fused together into a narrow fuscous border, which is still broader in the hindwing.

Habitat: Southern China.

Some specimens from Tonkin, in the Paris- and in the Leyden Museum.

Neochauliodes koreanus, nov. spec.

Nearly related to *sinensis* Wlk.; probably a subspecies of it.

Body fuscous, the prothorax orange or fuscous with traces of orange colour.

Wings smaller than in *sinensis*, but of the same form, very darkly coloured, by increasing of the fuscous colour, so that only a triangular hyaline spot at the base of the wings, included between the radius, cubitus and first row of crossveins and another smaller, more trapeziform one in the apical-area are hyaline. The apical one has the ends obtusely denticulated.

The costalfield is hyaline, except a brown patch in its middle in the forewing.

Body ♀ 22 mm., forew. 33—35 mm., hindw. 30—32 mm., ant. 12 mm.
Abd. ♀ 9 mm., gr. br. 13 mm., gr. br. 11½ mm.
Cost. forew. 28—33.
" hindw. 26—29.

Habitat: Korea.

Two females from Korea (the types) are in the British Museum.

Neochauliodes sundaicus borneensis, nov. subsp.

The Bornean subspecies differs from the Java- and Sumatra-specimens in the following characters:

Head and thorax yellow, a dark spot between the ocelli and on each side of the occiput. Prothorax with four black

points or streaks as in *Neuromus testaceus*. Meso- and metathorax with a black spot as in *sundaicus*. Abdomen black. Legs yellow, only the last 3—4 articulations of the tarsus brown. Antennae black.

Wings somewhat narrower and more elongated. The two dark points between media and radialsector are nearly invisible or absent. The dark spots of the forewing are very indistinct and less numerous than in *sundaicus*. Nervature of the same colour, but the costalveins of the hindwing yellow.

Body ♀ 22 mm., forew. 25—28 mm., hindw. 22—24 mm., ant. 11 mm.
Abd. ♀ 12 mm., gr. br. 9—11 mm., gr. br. $8\frac{1}{2}$—$9\frac{1}{2}$ mm.
Cost. forew. 23—25.
" hindw. 21—23.

Habitat: Borneo.

One female-specimen (the type) from the Mahakkam river, collected by Prof. Dr. A. W. Nieuwenhuis, is in the Leyden Museum. Another defective one from Sandakan, that probably is a male, is in the Paris Museum.

Neochauliodes obscurus, nov. spec.

A very aberrant species, well-characterised by the shining black colour of the body, legs, antennae etc.; only the mouthparts orange, except the tips of mandibles which are black. Antennae serrate in the female.

Wings broadly oval, black, the humeri orange red, those in the hindwings in lesser extension than in the forewings. Costal-area in the forewing with some hyaline, whitish spots, in the hindwing wholly black. Pterostigma cream-white in both wings, distalwards from it one or two large, hyaline spots in the apicalfield and a somewhat smaller one between media and cubitus in the forewings. In the hindwing this spot reaches more proximalwards and surpasses the radialsector, almost touching the radius. There are in the apicalfield of both wings traces of light streaks in the cells, and in the hindwings are similar

streaks between the lower cubitus and the analveins. Nervature black, except in the light spots and some veins of the apicalfield, which are yellow.

Body ♀ 28 mm., forew. 37 mm., hindw. 34 mm., cost. forew. 25.
Abd. ♀ 13 mm., gr. br. 14½ mm., gr. br. 15 mm., cost. hindw. 25.

Habitat: India.

One female from Manipur (Dr. Watts) is in the British Museum.

Ctenochauliodes, nov. gen.

This genus is characterised by the pectinate antennae in both sexes.

The type is *Ch. nigrovenosus* Weele from Tonkin.

Subfam. SIALIDINAE.

This subfamily only consists of one tribe, the SIALINI, which contains only two genera: *Sialis* and *Protosialis*.

Protosialis, nov. gen.

Body and wings more slender than in *Sialis*. Colour of the body black with orange. Antennae in the male thick and pilose, in the female thin and naked.

Wings elongate and narrow, elliptical, with dark membrane and thin nervature, so that the latter is not so distinct. The costal-area is not enlarged before the middle but gradually narrowed. The costalveins have an oblique direction, not a vertical one as in *Sialis*. The radialsector has two branches, the first of them being one-forked, the second simple and as long as the last simple end of the radius. In *Sialis* these last two branches are always forked.

Habitat: North- and Central America, Cuba and Chile.

The type of the genus is *S. americana* Ramb., and other species of it are *mexicana* Banks, *bifasciata* Hagen and *chilensis* Mac Lachlan.

Sialis japonica, nov. spec.

Sialis spec. Mac Lachlan, Ent. monthl. Mag. VII, p. 146 (1870), Japan; Transact. Ent. Soc. Lond. 1875, p. 174 (1875).

This species belongs to the nearest related of *fuliginosa* by its external characters, size etc.

The costa is black at the base, the two markings on the occiput are somewhat divergent and the wings are more or less dark smoky brown.

The genitalia, however, are very different and as the female only is known, there is an interesting resemblance with *infumata* Newm. from N. America, as the hindborder of the 7th sternit bears a small semicircular excision in the middle. The 8th sternit is a solid piece with straight hindborder and broadly bilobed frontborder. The first bears in the middle a hyaline hexagonal piece, which has a small distal knob.

Habitat: Japan.

I examined three females from Japan in de Selys' collection, and in the Museum of Paris and of Leyden. The male is unknown.

Leyden, February 20, 1909.